

What Is Claimed Is:

1. A process for preparing a nucleic acid sample, comprising the steps of;

5 (a) providing a nucleic acid sample having plural species of sequences, and providing one or plural kinds of probes having a known sequence being substantially complementary to a portion of sequence of said nucleic acid sample,

10 (b) mixing and hybridizing said nucleic acid sample with said probes, and

15 (c) subsequently recovering nucleic acid molecules not being hybridized with the probes.

2. A process for preparing a nucleic acid sample, comprising the steps of;

15 (a) providing a nucleic acid sample having plural species of sequences, and providing one or plural kinds of probes having a known sequence being substantially complementary to a portion of sequence of said nucleic acid sample,

20 (b) mixing and hybridizing said nucleic acid sample with said probes, and

25 (c) treating the product of step (b) with nuclease activity of a enzyme or the probe itself.

(d) subsequently recovering the nucleic acid molecules not digested by said nuclease activity in step (c).

3. A process for preparing a nucleic acid sample, comprising the steps of;

(a) providing a nucleic acid sample having plural species of sequences and oligonucleotide primers having predetermined sequences for synthesizing DNA strands, and

(b) providing one or plural kinds of probes having a known sequence being substantially complementary to a portion of sequence of said nucleic acid sample and having such a structure as to prevent a polymerase reaction from its 3' end and a nuclease reaction from its 5' end, and

(c) mixing and hybridizing said nucleic acid sample with said primers and said probes, and

(d) execution of polymerase reaction for the samples prepared in step (c), and

(e) subsequently recovering nucleic acid molecules synthesized in step (d).

4. The method according to claim 1, wherein said probe carrier is immobilized onto a solid phase including a bead or substrate.

5. The method according to claim 2, wherein said probe carrier is immobilized onto a solid phase including a bead or substrate.

6. The method according to claim 3, wherein

50 55 60 65 70 75 80 85 90 95
said probe carrier is immobilized onto a solid phase
including a bead or substrate.

7. The method according to claim 1, said
process further comprising the steps of :
5 (a) checking the amount and purity of nucleic
acids bound to said probe , and
(b) judging the necessity of further process
of claim 1 by the result of step (a).

10 15 20
8. The method according to claim 2, said
process further comprising the steps of :
(a) checking said amount and purity of
nucleic acids bound to said probe , and
(b) judging the necessity of further process
of claim 2 by the result of step (a).

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9. The method according to claim 4, said
process further comprising the steps of :
(a) checking said amount and purity of
nucleic acids bound to said probe , and
(b) judging the necessity of further process
of claim 4 by the result of step (a).

10. The method according to claim 5, said
process further comprising the steps of :
25 (a) checking said amount and purity of
nucleic acids bound to said probe , and

(b) judging the necessity of further process
of claim 5 by the result of step (a).

11. A nucleic acid sample obtained through
5 the steps of :

(a) providing a nucleic acid sample having
plural species of sequences, and providing one or
plural kinds of probes having a known sequence being
substantially complementary to a portion of
10 sequence of said nucleic acid sample,

(b) mixing and hybridizing said nucleic acid
sample with said probes, and

(c) subsequently recovering nucleic acid
molecules not being hybridized with the probes.

15 12. A nucleic acid sample obtained through
the steps of;

(a) providing a nucleic acid sample having
plural species of sequences, and providing one or
20 plural kinds of probes having a known sequence being
substantially complementary to a portion of
sequence of said nucleic acid sample,

(b) mixing and hybridizing said nucleic acid
sample with said probes, and

25 (c) treating the product of step (b) with
nuclease activity of a enzyme or the probe itself,
and

(d) subsequently recovering the nucleic acid

molecules not digested by said nuclease activity
in step (c).

13. A nucleic acid sample obtained through
5 the steps of ;

(a) providing a nucleic acid sample having
plural species of sequences and oligonucleotide
primers having predetermined sequences for
synthesizing DNA strands, and

10 (b) providing one or plural kinds of probes
having a known sequence being substantially
complementary to a portion of sequence of said
nucleic acid sample and having such a structure as
to prevent a polymerase reaction from its 3' end
15 and a nuclease reaction from its 5' end, and

(c) mixing and hybridizing said nucleic acid
sample with said primers and said probes,

(d) execution of polymerase reaction for the
samples prepared in step (c), and

20 (e) subsequently recovering nucleic acid
molecules synthesized in step (d).

14. A synthesizing method of a probe carrier
used for removing one or plural abundant genes in
25 the nucleic acid sample, said method using a
resin-bonded 3' nucleoside designed to prevent a
polymerase reaction from its 3' end.

15. A kit for removing nucleic acids
hybridized with probe carriers comprising the steps
of providing a nucleic acid sample to be analyzed
and probe carrier having a known sequence being
substantially complementary to a portion of
5 sequence of abundant expressed genes in the said
nucleic acid sample, removing one or plural abundant
genes by mixing and hybridized said probe carriers
with said nucleic acid sample, recovering nucleic
acid sample not being hybridized with said probe
10 carriers, which kit comprising :
15

a set of probe carriers being hybridized with
one or plural abundant genes in said nucleic acid
sample, having such a structure as to prevent a
polymerase reaction from its 3' end.

16. A kit according to claim 15, wherein said
probe carriers having resistance to nuclease
activity.

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17. A kit according to claim 15, wherein said
probe carriers having nuclease activity itself.

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18. A apparatus for removing nucleic acids
hybridized with probe carriers comprising the steps
of providing a nucleic acid sample to be analyzed ,
removing one or plural abundant genes by mixing and
hybridized said probe carriers with said nucleic

acid sample, recovering nucleic acid sample not being hybridized with said probe carriers, which apparatus comprising :

two filtering units,

5 a first filtering unit having a structure for chemically or physically retaining nucleic acids hybridized with said probe carriers, and a second filtering unit having a structure to prevent nucleic acids from permeating and allow 10 water and inorganic salts to permeate.

19. A apparatus according to claim 18, further comprising a structure for allowing 15 electrophoresis for migrating said nucleic acid sample from the first filtering unit to the second filtering unit.

20. A commercial service of preparation of nucleic acid sample for removing nucleic acids hybridized with probe carriers comprising the steps 20 of:

(a) receiving a nucleic acid sample from customer, and

25 (b) providing one or plural kinds of probes having a known sequence being substantially complementary to a portion of sequence of abundant expressed genes in the said nucleic acid sample, and

100-200-300-400-500-600-700-800-900-1000

(c) recovering nucleic acid sample not being hybridized with said probe carriers by mixing and hybridizing said nucleic acid sample with said primers and said probes , and

5 (d) return the nucleic acid sample prepared in the step (c) to the customer.

21. A Method for analyzing a nucleic acid sample, comprising the steps of;

10 (a) providing a nucleic acid sample having plural species of sequences, and providing one or plural kinds of probes having a known sequence being substantially complementary to a portion of sequence of said nucleic acid sample,

15 (b) mixing and hybridizing said nucleic acid sample with said probes, and

(c) subsequently recovering nucleic acid molecules not being hybridized with the probes.

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B'

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